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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/770,035	01/25/2001	Essam Sourour	4015-858	5212

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EXAMINER	
DAVIS, TEMICA M	
ART UNIT	**PAPER NUMBER**
2681	

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/770,035	Applicant(s) SOUROUR ET AL.	
	Examiner Temica M. Davis	Art Unit 2681	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *17-26* is/are allowed.

6)☒ Claim(s) *1,2 and 9-16* is/are rejected.

7)☒ Claim(s) *4-8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed January 8, 2004 with respect to the rejection(s)of claim(s) 1 and 17 with respect to Sanders, U.S. Patent No. 6,567,653, have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made with Sanders in view of Valentine et al (Valentine), U.S. Patent No. 5,748,678.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2 and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanders in view of Valentine.

Regarding claim 1 Sanders discloses a transmitter (120; figures 2 and 3) comprising a modulator (236A/236B) to generate a modulated output signal responsive to at least one baseband information signal col. 7, line 65-col. 8, line 3); an amplifier to generate a transmit signal based on amplifying said modulated output signal, said amplifier having at least first and second operating modes (col. 8, lines 2-3 and col. 8,

lines 32-39); and a phase shifter for effecting desired signal transmission for the first and second operating modes (col. 8, lines 12-15).

Sanders, however, fails to disclose a phase compensator to selectively impart a compensating phase shift to said at least one baseband information signal to offset an expected phase shift imparted to said transmit signal by said amplifier when operating in said second mode (col. 7, line 65-col. 8, line 39).

In a similar field of endeavor, Valentine discloses a radio communication device. Valentine further discloses a predistortion circuit that predistorts baseband signals in an amplifier chain so that distortion is cancelled. A baseband processor compares undistorted I and Q signals with fed back signals and obtains information related to the phase changes introduced in the amplified signals in order to predistort the baseband signal (col. 3, lines 10-42).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify Sanders with the teachings of Valentine for the purpose of reducing channel interference and obtain optimal channel performance (Valentine, col. 2, lines 23-36 and col. 3, lines 18-24).

Regarding claim 2, the combination of Sanders and Valentine discloses the transmitter of claim 1 wherein said amplifier comprises a multi-stage power amplifier with at least one selectively enabled amplifier stage, that is selectively enabled to switch between said first and second operating modes (Sanders, col. 8, lines 16-39).

Regarding claim 12, the combination of Sanders and Valentine discloses the transmitter of claim 1 and further discloses a memory to store a reference value

representative of said expected phase shift imparted to said transmit signal by said amplifier when operating in said second mode, said reference value used by said phase compensator to set said compensation term (Valentine, col. 3, lines 38-42).

Regarding claim 13, the combination of Sanders and Valentine discloses the transmitter of claim 1 wherein said phase compensator comprises a portion of a digital processor executing program instructions to effect phase compensation of said at least one baseband information signal (Valentine, col. 3, lines 34-42).

Regarding claim 14, the combination of Sanders and Valentine discloses the transmitter of claim 1 as described above, and further discloses the transmitter implemented in mobile station (Sanders, col. 3, lines 50-58) or in a general radio communication apparatus (Valentine, col. 1, lines 4 and 5). Sanders or Valentine, however, fails to disclose specifically disclose wherein the transmitter is implemented in a base station.

The examiner contends, however, that at the time of invention, such a feature would have been obvious to a person of ordinary skill in the art since base stations are known to transmit signals, wherein such signals may need to be amplified in order to ensure the transmitted signal reaches its destination.

Regarding claim 15, the combination of Sanders and Valentine discloses the transmitter of claim 1 wherein said transmitter comprises a mobile terminal transmitter forming a portion of a mobile terminal, said mobile terminal supporting wireless communication in a mobile communication environment (Sanders, col. 3, lines 50-58).

Regarding claim 16, the combination of Sanders and Valentine discloses the transmitter of claim 15 wherein said mobile terminal further comprises a processor to control said phase compensator (Valentine, col. 3, lines 38-42).

4. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanders and Valentine as applied to claims 1, 2 and 12-16 above, and further in view of Malec, U.S. Patent No. 5,150,072.

Regarding claim 9, the combination of Sanders and Valentine discloses the transmitter of claim 1 as described. The combination, however, fails to disclose a test circuit to determine said expected phase shift imparted to said transmit signal by said amplifier when operating in said second mode.

In a similar field of endeavor Malec discloses distortion correction for an amplifier system. Malec further discloses a test circuit to determine said expected phase shift imparted to said transmit signal by said amplifier when operating in a mode (col. 7, line 60-col. 8, line 12).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the combination of Sanders and Valentine with the test circuit used in Malec for the purpose of ensuring that the amplifier circuitry will operate at optimum performance based on test values.

Regarding claim 10, the combination of Sanders, Valentine and Malec discloses the transmitter of claim 9 further comprising inherently a processor to selectively activate said test circuit (Malec, figure 1).

Regarding claim 11, the combination of Sanders, Valentine and Malec discloses the transmitter of claim 10 and further discloses a memory associated with said test circuit to store a reference value determined from testing said amplifier via said test circuit, said reference value used to set said compensation term (Valentine, col. 3, lines 38-42).

Allowable Subject Matter

5. Claims 3-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 3, prior art fails to suggest or render obvious wherein a phase compensator comprises a complex multiplier to selectively multiply said at least one baseband information signal by a compensation term to impart said compensating phase shift to said at least one baseband information signal that is opposite of said expected phase shift imparted to said transmit signal by said amplifier when operating in said second mode.

Regarding claim 4, prior art fails to suggest or render obvious a phase compensator further comprises: an indicator signal input to receive a mode indicator identifying a current mode of said amplifier, said current mode being one of said at least first and second modes; a compensation signal input to receive compensation values; processing logic to multiply said at least one baseband information signal by a compensation term based on said compensation values; and control logic responsive to

said mode indicator to select as output from said phase compensator said at least one baseband information signal taken before or after operation of said processing logic.

Regarding claims 5-8, they are indicated allowable based on their dependence of allowable claim 4.

6. Claims 17-26 are allowed.

7. The following is a statement of reasons for the indication of allowable subject matter: Prior art fails to suggest or render obvious a method of substantially preventing phase shift changes in a transmit signal arising from changing modes in a transmit amplifier comprising selectively operating said transmit amplifier in a first mode and at least one additional mode, wherein each additional mode imparts an expected phase shift in said transmit signal relative to said first mode; sensing when said amplifier changes to one of said additional modes; and imparting a compensating phase shift to said baseband information signal that is opposite to said expected phase shift imparted to said transmit signal for a current one of said at least one additional

Regarding claims 18-26, they are indicated allowable based on their dependence of allowable claim 17.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Temica M. Davis whose telephone number is (703) 306-

5837. The examiner can normally be reached Monday through Friday (alternate Fridays) from 9:00am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Erika Gary can be reached on (703) 308-0123. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

Temica M. Davis
Examiner
Art Unit 2681

TMD
March 21, 2004

TEMICA M. DAVIS
PATENT EXAMINER